CLAIMS

What is claimed is:

1. A high frequency interconnect comprising:

a dielectric sleeve;

a compressible bellows interconnect fitted within said dielectric sleeve; and

a conductive elastomeric gasket shielding a portion of said compressible bellows interconnect.

2. The high frequency interconnect of claim 1 further including:

a first cap coupled to a first end of said compressible bellows interconnect having a first major surface coupling to said first end of said compressible bellows interconnect and a second major surface for coupling to a first component; and

a second cap coupled to a second end of said compressible bellows interconnect having a first major surface coupling to said second end of said compressible bellows interconnect and a second major surface for coupling to a second component.

3. The high frequency interconnect of claim 2 wherein said first cap includes a pin extending from said second major surface for coupling to said first component.

4. The high frequency interconnect of claim 3 wherein said compressible bellows interconnect is cylindrical in shape.

5. The high frequency interconnect of claim 4 wherein said compressible bellows interconnect comprises:

a layer of nickel alloy; and

a layer of gold.

6. The high frequency interconnect of claim 5 wherein said dielectric sleeve is formed having a first section having a first diameter and a second section having a second diameter.

7. The high frequency interconnect of claim 6 wherein said dielectric sleeve includes a feature for holding at least one conductive elastomeric gasket.

8. The high frequency interconnect of claim 7 further including a first feature for holding said conductive elastomeric gasket in said second section of said dielectric sleeve wherein said second diameter is greater than said first diameter and wherein a length of said conductive elastomeric gasket extends above and below said second section of said dielectric sleeve.

9. The high frequency interconnect of claim 8 wherein said conductive elastomeric gasket comprises a silver filled silicone rubber.

10. The high frequency interconnect of claim 9 wherein said conductive elastomeric gasket comprises a silver plated bead filled silicone rubber.

11. The high frequency interconnect of claim 10 wherein said first component and said second component are compressed together placing said first cap in intimate contact with said first component and said second cap in intimate contact with said second component and wherein said compressible bellows interconnect acts as a spring to maintain said first and second caps respectively in intimate contact with said first and second components.

12. The high frequency interconnect of claim 11 wherein said elastomeric gasket electrically connects components in contact with said elastomeric gasket forming a shield around said compressible bellows interconnect to reduce radio frequency coupling with other interconnect.

13. A radio frequency system comprising:

a first module having a surface with a plurality of exposed connection points;

an integration plate having a plurality of openings corresponding to said plurality of exposed connection points;

a dielectric sleeve placed in each of said plurality of openings in said integration plate;

a second module having a surface with a plurality of exposed connection points corresponding to said plurality of exposed connection points on said first module;

a compressible bellows interconnect placed in each dielectric sleeve coupling to an exposed connection point of said plurality of exposed connection points of said first module and a corresponding connection point of said plurality of exposed connection points of said second module; and

a conductive elastomeric gasket for each of said plurality of openings for shielding and coupling said integration plate to a ground plane of said second module.

14. The radio frequency system as recited in claim 13 wherein a clamping force is applied to first and second modules to compress each compressible bellows interconnect.

15. The radio frequency system as recited in claim 14 wherein said ground plane, said integration plate, and each conductive elastomeric gasket combine to form a radio frequency shield around each opening of said plurality of openings in said integration plate.

16. The radio frequency system as recited in claim 15 wherein each dielectric sleeve, compressible bellows interconnect, and integration plate form a coaxial interconnect.

17. A method for reducing radio frequency coupling between interconnects in a radio frequency system comprising the steps of:

forming a plurality of through holes in a first component in a radio frequency system wherein said first component is electrically conductive; and

placing at least one conductive elastomeric gasket in proximity to each interconnect such that said conductive elastomeric gasket contacts said first component and a second component.

18. The method for reducing radio frequency coupling between interconnects in a radio frequency system as recited in claim 17 further including the steps of:

placing a dielectric sleeve in each of said plurality of through holes;

placing a compressible bellows interconnect in each dielectric sleeve wherein each compressible bellows interconnect has a first major surface and a second major surface;

coupling said first major surface of each compressible bellows interconnect to a corresponding contact area; and

coupling said second major surface of each compressible bellows interconnect to a corresponding contact area.

19. The method for reducing radio frequency coupling between interconnects in a radio frequency system as recited in claim 18 further including a step of assembling the radio frequency system such that each compressible bellows interconnect is compressed and each of said at least one conductive elastomeric gasket in proximity to each interconnect is compressed thereby electrically coupling said first component to said second component.

20. The method for reducing radio frequency coupling between interconnects in a radio frequency system as recited in claim 19 further including a step of forming a grounded shield radially around each compressible bellows interconnect when the radio frequency system is assembled.